



Docket No.: 1309.43693X00

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re the Application of:

Tomonori SOEDA et al.

Serial No. 10/806,098

Filed: March 23, 2004

For: DISK ARRAY DEVICE AND DISK ARRAY DEVICE CABLE  
SUPPORT METHOD

**PETITION TO MAKE SPECIAL**  
**UNDER 37 CFR §1.102(MPEP §708.02)**

June 9, 2005

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

Applicants hereby petition the Commissioner to make the above-identified application special in accordance with 37 CFR §1.102(d). Pursuant to MPEP §708.02(VIII), Applicants state the following.

(A) This Petition is accompanied by the fee set forth in 37 CFR §1.17(h). The Commissioner is hereby authorized to charge any additional payment due, or to credit any overpayment, to Deposit Account No. 50-1417.

(B) All claims are directed to a single invention. If the Office determines that all claims are not directed to a single invention, Applicant will make an election without traverse as a prerequisite to the grant of special status.

06/10/2005 HALI11 00000016 10806098

01 FC:1464

130.00 OP

(C) A pre-examination search has been conducted.

The search was directed to the invention set forth in claims 1-11. The present invention is directed, at a minimum, to a disk array device, comprising: a chassis; a plurality of logic boards, which are detachably mounted on said chassis, and which can be connected respectively to a plurality of external devices via a plurality of cables; a rail portion, which is disposed on said chassis parallel to the direction in which said logic boards are arranged; and a plurality of cable supporting portions, which are movably disposed on said rail portion in accordance with the number of said logic boards, and which detachably support said cables, and said cable supporting portions are constituted so as to be able to support said cables in said logic board units. Additionally, the disk array device may include that said cable supporting portions comprise an approximately cylindrical main body, a plurality of slots disposed by being circumferentially spaced on the main body, and a mounting portion for movably mounting said main body to said rail portion.

The search of the above features was conducted in the following areas: class 360, subclass 69, class 361, subclass 685, 788, 887, class 370, subclass 438, class 439, subclass 352, class 710, subclasses 2, 104, 107, 300 and 302, class 711, subclasses 4, 111, 112, 114 and 118, and class 714, subclass 6.

Additionally, a computer database search was conducted on the USPTO system EAST.

(D) The following is a list of the references deemed most closely related to the subject matter encompassed by the claims:

<u>U.S. Patent Number</u>	<u>Inventors</u>
5,530,831	Akiyama et al.
5,790,374	Wong
5,819,104	Tuccio
5,958,067	Kaneda et al.
6,061,752	Jones et al.

<u>U.S. Patent Publication No.</u>	<u>Inventor(s)</u>
2003/0022545	Heidenreich et al.
2004/0036995	Suzuki et al.
2004/0037034	Suzuki et al.

A copy of each of these references (as well as other references uncovered during the search) is enclosed in an accompanying IDS.

(E) It is submitted that the present invention is patentable over the references for the following reasons.

It is submitted that the cited references, whether considered alone or in combination, fail to disclose or suggest the invention as claimed. In particular, the cited references, at a minimum, fail to disclose or suggest in combination with the other limitations recited in the claims: a first feature of the present invention

as recited in independent claim 1 including a plurality of cable supporting portions, which are movably disposed on said rail portion in accordance with the number of said logic boards, and which detachably support said cables; a second feature of the present invention as recited in independent claim 10 wherein each said cable supporting portion includes: an approximately cylindrical main body; a plurality of slots, which are disposed by being circumferentially spaced on the main body, and which are capable of housing either one or a plurality of a plurality of types of cables each having different external dimensions; and a mounting portion for movably mounting said main body on said rail portion in a non-rotatable state; and a third feature of the present invention as recited in independent claim 11 including movably disposing a plurality of cable supporting portions more on the underside than in the mounting locations of said logic boards, parallel to the direction in which said logic boards are arranged, and detachably supporting said cables respectively in said cable supporting portions in said logic board units.

The references considered most closely related to the claimed invention are briefly discussed below:

**U.S. Patent No. 5,530,831 (Akiyama et al.)** discloses a disk array system in which the disk array control mode can be switched to a higher-performance mode easily by exchanging extension boards. An IF board is parallel-connected to disk devices through signal lines. Several types of extension boards, each having a controller in accordance with the access control mode, are prepared so

that one of the extension boards is connected to the IF board through a connector formed as a set of one internal bus connector, a plurality of SCSI connectors and extension board type identification pins. As a result, it is not necessary for a user to alter the connection of disk drives and to switch control software on the host computer, so that the disk array control mode can be changed to a higher-performance mode easily only by exchanging the board. (See, e.g., Abstract and column 4, lines 1-24.) However, unlike the present invention, Akiyama et al. do not disclose or suggest the above described first feature of the present invention as recited in independent claim 1, the above described second feature of the present invention as recited in independent claim 10 and the above described third feature of the present invention as recited in independent claim 11, in combination with the other limitations recited in each of the independent claims.

**U.S. Patent No. 5,790,374 (Wong)** discloses a disk array device with a computer cabinet and hot-pluggable disk drive module design including an indicator light support for the disk drive module. The cabinet includes a disk drive module receiving bay into which the disk drive module is removably installed. The disk drive receiving bay includes a backplane having at least one connector for engagement with a corresponding connector, preferably a single-connector-architecture (SCA) connector, protruding from a leading surface of the disk drive module. A light source mounted to the backplane near the backplane connector is illuminated to provide status information concerning the disk drive module. (See, e.g., Abstract and column 2, line 63, through column 3, line 43.)

However, unlike the present invention, Wong does not disclose or suggest the above described first feature of the present invention as recited in independent claim 1, the above described second feature of the present invention as recited in independent claim 10 and the above described third feature of the present invention as recited in independent claim 11, in combination with the other limitations recited in each of the independent claims.

**U.S. Patent No. 5,819,104 (Tuccio)** discloses a disk array memory system that includes a disk subsystem, a disk director module, and a cable connected between the disk subsystem and the disk director module. The disk subsystem includes a disk drive backplane having disk drive connectors interconnected by a first data bus section, and disk drives mounted in the disk drive connectors and coupled to the first data bus section. The cable constitutes a second data bus section. The system further includes a bus repeater located in the disk subsystem and including a first port electrically connected to the first data bus section and a second port electrically connected to the cable. The bus repeater logically interconnects the first and second data bus sections and regenerates signals transmitted in either direction between the disk director module and the disk drives. The bus repeater may be implemented as a circuit board mounted in the disk drive backplane, or as a module located in close proximity to the disk drive backplane and interconnected to the disk drive backplane. (See, e.g., Abstract and column 1, line 63, through column 2, line 38.) However, unlike the present invention, Tuccio does not disclose or suggest the above described first feature of the present invention as recited in

independent claim 1, the above described second feature of the present invention as recited in independent claim 10 and the above described third feature of the present invention as recited in independent claim 11, in combination with the other limitations recited in each of the independent claims.

**U.S. Patent No. 5,958,067 (Kaneda et al.)** discloses a disk array device with an array board connected with the SCSI controller of the host system by an SCSI controller. The disk array device has a group of magnetic disk units, and the group of magnetic disk units includes five magnetic disk units. Each of the magnetic disk units has an SCSI controller, which is connected with the corresponding SCSI controller of the array board by cable. (See, e.g., Abstract and column 16, lines 19-34.) However, unlike the present invention, Kaneda et al. do not disclose or suggest the above described first feature of the present invention as recited in independent claim 1, the above described second feature of the present invention as recited in independent claim 10 and the above described third feature of the present invention as recited in independent claim 11, in combination with the other limitations recited in each of the independent claims.

**U.S. Patent No. 6,061,752 (Jones et al.)** discloses a disk array device that allows hot plugging of a peripheral controller card, containing both a local bus and a peripheral bus on a single connector, into a host system board containing a host system bus and a host I/O bus. The disk array device includes a chassis with an array controller with a disk array controller card coupled to a mass storage peripheral device. The disk array controller card has a peripheral

connector which provides cable management. (See, e.g., Abstract and column 2, lines 18-50.) However, unlike the present invention, Jones et al. do not disclose or suggest the above described first feature of the present invention as recited in independent claim 1, the above described second feature of the present invention as recited in independent claim 10 and the above described third feature of the present invention as recited in independent claim 11, in combination with the other limitations recited in each of the independent claims.

**U.S. Patent Publication No. 2003/0022545 (Heidenreich et al.)**

discloses a method and apparatus for securely engaging a module, such as a computer component, into a connector which is supported on a chassis or a main board. The apparatus includes a disk array device with a chassis containing circuit boards or circuit modules. Each circuit board or circuit module has an electrical connector connected to it. (See, e.g., Abstract and paragraphs 13-16, and paragraph 39.) However, unlike the present invention, Heidenreich et al. do not disclose or suggest the above described first feature of the present invention as recited in independent claim 1, the above described second feature of the present invention as recited in independent claim 10 and the above described third feature of the present invention as recited in independent claim 11, in combination with the other limitations recited in each of the independent claims.

**U.S. Patent Publication No. 2004/0036995 (Suzuki et al.)** discloses a storage apparatus that includes at least one housing A, in which a storage device and a controller are provided, at least one housing B, in which a storage device and a peripheral device are provided, and a transmission path for connecting the



storage device and the controller of the housing A and the storage device of the housing B to enable communication therebetween. The storage apparatus is capable of controlling operation of the storage device of the housing B according to an operating state of the storage device of the housing A through communication via the transmission path; and controlling operation of the peripheral device according to an operating state of the storage device of the housing B. One of the housings of a disk array device comprises: two controller boards mounted in the vertical direction; a communication interface board for providing a communication function; and a cache memory for storing data to be written into a disk drive and data read out from a disk drive. (See, e.g., Abstract and paragraphs 8-11, and paragraph 35.) However, unlike the present invention, Suzuki et al. do not disclose or suggest the above described first feature of the present invention as recited in independent claim 1, the above described second feature of the present invention as recited in independent claim 10 and the above described third feature of the present invention as recited in independent claim 11, in combination with the other limitations recited in each of the independent claims.

**U.S. Patent Publication No. 2004/0037034 (Suzuki et al.)** discloses a disk array device comprising: a circuit board having electrical connectors; a hard disk drive module connected to the circuit board via at least one of the electrical connectors, including a disk for recording information thereon, and having one side that has a length substantially equal to the diameter of the disk; a battery module connected to the circuit board via at least one of the electrical

connectors; an operation module connected to the circuit board via at least one of the electrical connectors; a fan module connected to the circuit board via at least one of the electrical connectors and having at least one cooling fan; a controller module connected to the circuit board via at least one of the electrical connectors and having a controller; a power supply module connected to the circuit board via at least one of the electrical connectors and provided for supplying power to the modules; and a substantially box-shaped chassis in which the modules and the circuit board are housed, a front surface and a rear surface of which being opened in a rectangular shape; wherein a length of one side of the opened front surface of the chassis is substantially the same length as the one side of the hard disk drive module. (See, e.g., Abstract and paragraphs 9-11.) However, unlike the present invention, Suzuki et al. do not disclose or suggest the above described first feature of the present invention as recited in independent claim 1, the above described second feature of the present invention as recited in independent claim 10 and the above described third feature of the present invention as recited in independent claim 11, in combination with the other limitations recited in each of the independent claims.

Therefore, since the references fail to disclose or suggest the above described first feature of the present invention as recited in independent claim 1, the above described second feature of the present invention as recited in independent claim 10 and the above described third feature of the present invention as recited in independent claim 11, in combination with the other

limitations recited in each of the independent claims, it is submitted that all of the claims are patentable over the cited references.

### **CONCLUSION**

Applicant has conducted what it believes to be a reasonable search, but makes no representation that "better" or more relevant prior art does not exist. The Patent Office is urged to conduct its own complete search of the prior art, and to thoroughly examine this application in view of the prior art cited herein and any other prior art that the Patent Office may locate in its own independent search. Further, while Applicant has identified in good faith certain portions of each of the references listed herein in order to provide the requisite detailed discussion of how the claimed subject matter is patentable over the references, the Patent Office should not limit its review to the identified portions but rather, is urged to review and consider the entirety of each reference, and not to rely solely on the identified portions when examining this application.

In view of the foregoing, Applicant requests that this Petition to Make Special be granted and that the application undergo the accelerated examination procedure set forth in MPEP 708.02 VIII.

Respectfully submitted,

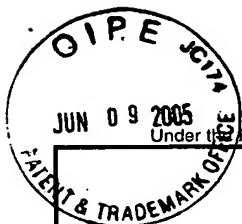
MATTINGLY, STANGER, MALUR & BRUNDIDGE, P.C.



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**PETITION FEE**  
Under 37 CFR 1.17(f), (g) & (h)**TRANSMITTAL**

(Fees are subject to annual revision)

Send completed form to: Commissioner for Patents  
P.O. Box 1450, Alexandria, VA 22313-1450

Application Number	10/806,098
Filing Date	March 23, 2004
First Named Inventor	Tomonori SOEDA et al.
Art Unit	2655
Examiner Name	Not yet assigned
Attorney Docket Number	1309.43693X00

**Enclosed is a petition filed under 37 CFR 1.102(d) that requires a processing fee (37 CFR 1.17(f), (g), or (h)). Payment of \$ 130.00 is enclosed.**

This form should be included with the above-mentioned petition and faxed or mailed to the Office using the appropriate Mail Stop (e.g., Mail Stop Petition), if applicable. For transmittal of processing fees under 37 CFR 1.17(i), see form PTO/SB/17i.

**Payment of Fees** (small entity amounts are NOT available for the petition (fees))

- ☒ The Commissioner is hereby authorized to charge the following fees to Deposit Account No. 50-1417:
- ☐ petition fee under 37 CFR 1.17(f), (g) or (h) ☒ any deficiency of fees and credit of any overpayments
- Enclose a duplicative copy of this form for fee processing.
- ☐ Check in the amount of \$ \_\_\_\_\_ is enclosed.
- ☒ Payment by credit card (From PTO-2038 or equivalent enclosed). Do not provide credit card information on this form.

**Petition Fees under 37 CFR 1.17(f):****Fee \$400****Fee Code 1462**

For petitions filed under:

- § 1.53(e) - to accord a filing date.
- § 1.57(a) - to according a filing date.
- § 1.182 - for decision on a question not specifically provided for.
- § 1.183 - to suspend the rules.
- § 1.378(e) for reconsideration of decision on petition refusing to accept delayed payment of maintenance fee in an expired patent.
- § 1.741(b) - to accord a filing date to an application under §1.740 for extension of a patent term.

**Petition Fees under 37 CFR 1.17(g):****Fee \$200****Fee code 1463**

For petitions filed under:

- §1.12 - for access to an assignment record.
- §1.14 - for access to an application.
- §1.47 - for filing by other than all the inventors or a person not the inventor.
- §1.59 - for expungement of information.
- §1.103(a) - to suspend action in an application.
- §1.136(b) - for review of a request for extension of time when the provisions of section 1.136(a) are not available.
- §1.295 - for review of refusal to publish a statutory invention registration.
- §1.296 - to withdraw a request for publication of a statutory invention registration filed on or after the date the notice of intent to publish issued.
- §1.377 - for review of decision refusing to accept and record payment of a maintenance fee filed prior to expiration of a patent.
- §1.550(c) - for patent owner requests for extension of time in ex parte reexamination proceedings.
- §1.956 - for patent owner requests for extension of time in inter partes reexamination proceedings.
- § 5.12 - for expedited handling of a foreign filing license.
- § 5.15 - for changing the scope of a license.
- § 5.25 - for retroactive license.

**Petition Fees under 37 CFR 1.17(h):****Fee \$130****Fee Code 1464**

For petitions filed under:

- §1.19(g) - to request documents in a form other than that provided in this part.
- §1.84 - for accepting color drawings or photographs.
- §1.91 - for entry of a model or exhibit.
- §1.102(d) - to make an application special.
- §1.138(c) - to expressly abandon an application to avoid publication.
- §1.313 - to withdraw an application from issue.
- §1.314 - to defer issuance of a patent.

Name (Print/Type)	Frederick D. Bailey	Registration No. (Attorney/Agent)	42,282
Signature		Date	June 9, 2005

This collection of information is required by 37 CFR 1.114. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.